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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/925,320

08/10/2001

Hidekazu Kobayashi

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11/24/2004

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EXAMINER

ZIMMERMAN, GLENN

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 11/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/925,320

Applicant(s)

KOBAYASHI, HIDEKAZU

Examiner

Glenn Zimmerman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 September 2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-29 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 17-29 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 26 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

Amendment, filed on September 29, 2004, has been entered and acknowledged by the examiner.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 28 is rejected under 35 U.S.C. 102(e) as being anticipated by Shi et al.

U.S. Patent 6,361,886.

Regarding claim 28, Shi et al. Disclose an organic EL device, comprising:

A light-emitting layer (Fig. 2 ref. 400) and a hole injection/transport layer (col. 27 lines 62 and 63) provided between a first electrode layer (ref. 200) and a second electrode layer (ref. 700) opposing thereto, and a fluorine (ref. 300; col. 4 lines 42 and 59; col. 3 line 56) containing layer formed between the hole injection/transport layer (co. 27 lines 62 and 63) and the light-emitting layer (ref. 400).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-19 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Celli et al. U.S. Patent 6,274,979 in view of and Shi et al. U.S. Patent 6,361,886.

Regarding claim 17, Celli teaches an organic EL device, comprising: a plurality of light-emitting areas (Fig. 11 areas below Al cathodes) above a substrate (Fig. 11 glass), each of the light-emitting areas having a light-emitting layer and a hole injection/transport layer (Fig. 11 lower LiF layer) provided between a first electrode layer (ITO layer) and a second layer (Al layer) opposing thereto; a plurality of non-light-emitting areas (areas between the Al cathode layers) above the substrate, each of the non light-emitting areas having a non light-emitting layer (Alq3 will not emit light between the Al cathodes also the TPD portion between the Al will not emit light ) provided between the plurality of light-emitting areas; and a hole blocking layer (upper LiF layer), which allows electrons but not holes to pass therethrough, over the light-emitting layers and non light-emitting layers to enhance insulating properties between the plurality of light-emitting areas, but fails to teach a fluorine containing layer is formed between the hole injection/transport layer and the light-emitting layer. Shi et al.'886 in

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the analogous art teaches teach a fluorine containing layer is formed between the hole injection/transport layer and the light-emitting layer (col. 4 lines 42 and 59; col. 3 line 56). Additionally, Shi et al. '886 teaches incorporation of such a hole transport layer to improve hole transport for an emissive layer (2 ref. 400).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a fluorine containing layer is formed between the hole injection/transport layer and the light-emitting layer in the organic electroluminescent display of Shi et al., since such a modification would improve hole transport as taught by Shi et al. '886.

Regarding claim 18, Celii et al. teach the organic EL device according to claim 17, further comprising a layer composed of a material containing fluorine between the first electrode layer and the light-emitting layer (Fig. 11 choose either LiF layer).

Regarding claim 19, Celii et al. teach the organic EL device according to claim 17, wherein the first electrode layer is an anode (Fig. 11 ITO) and the second electrode (Fig. 11 Al) layer is a cathode, further wherein the anode is provided with the hole injection/transport layer thereon (Fig. 11 LiF), and the hole blocking layer comprises at least one of an alkali fluoride and an alkali earth fluoride (Fig. 11 upper LiF layer).

Regarding claim 25, Celii et al. teach the organic EL device of claim 17, wherein the first electrode is an anode (Fig. 11 ITO ITO is the anode because the hole transport layer is on the ITO side of the Alq light emitting layer) and the second electrode is cathode (Fig. 11 Al).

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Regarding claim 26, Celli et al. teach the organic EL device of claim 17, wherein the hole blocking layer is formed over the light-emitting layer (Fig. 11 upper LiF layer).

Regarding claim 27, Celli et al. Teach the organic EL device of claim 17, wherein the hole blocking layer (Fig. 11 upper LiF layer) is formed between the cathode and the light-emitting layer.

Claims 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Celli et al. U.S. Patent 6,274,979 in view of Shi et al. U.S. Patent 6,361,886 and Shi et al. U.S. Patent 6,076,316.

Regarding claim 20, Celli et al. teaches an organic EL device the organic EL device comprising (title): a plurality of light-emitting areas (areas immediately below the Al cathodes) above a substrate (Fig. 11 glass), each of the light-emitting areas having a light-emitting layer provided between a first electrode layer (ITO) and a second electrode layer (Al layer) opposing thereto; a plurality of non light-emitting areas (areas between the AL layer) above the substrate, each of the non light-emitting areas having a non light-emitting layer (TPD portion between Al layer or Alq3 between the AL cathodic layers) and a hole injector/transport layer (lower LiF layer) provided between the plurality of light –emitting areas, the hole injection/transport layer and a hole blocking layer (upper LiF layer), which allows electrons but not holes to pass therethrough, in both of the light-emitting areas and the non light-emitting areas, but fails to teach a fluorine containing layer is formed between the hole injection/transport layer and the light-emitting layer. Shi et al.'886 in the analogous art teaches teach a fluorine containing layer (col. 4 lines 42 and 59; col. 3 line 56) is formed between the

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hole injection/transport layer and the light-emitting layer. Additionally, Shi et al. '886 teaches incorporation of such a hole transport layer to improve hole transport for an emissive layer (2 ref. 400).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a fluorine containing layer is formed between the hole injection/transport layer and the light-emitting layer in the organic electroluminescent display of Shi et al., since such a modification would improve hole transport as taught by Shi et al. '886.

Regarding claim 20, Celii et al. and Shi et al. '866 teach all the limitations of claim 20, but fail to teach an electronic apparatus. Shi et al. '316 in the analogous art teaches an electronic apparatus (col. 1 lines 10-16). Additionally, Shi et al. '316 teach incorporation of such an electronic apparatus to improve viewing of portable electronic and communication device in virtually any location.

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the electronic apparatus of Shi et al '316 in the organic display of Celii et al. and Shi et al. '866, since such a modification would improve viewing of portable electronic and communication device in virtually any location as taught by Shi et al. '316.

Regarding claim 21, Celii et al. disclose an organic EL device of claim 20, wherein the first electrode is an anode (Fig. 11 ITO) and the second electrode is a cathode (Fig. 11 Al).

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Regarding claim 22, Celii et al. disclose the organic EL device of claim 21, wherein the hole injection/transport layer is formed between the first electrode and the light-emitting layer (Fig. 11 lower LiF layer).

Regarding claim 23, Celii et al. disclose the organic EL device of claim 20, wherein the hole blocking layer is formed over the light-emitting layer (Fig. 11 upper LiF layer).

Regarding claim 24, Celii et al. Disclose the organic EL device of claim 20, wherein the hole blocking layer is formed between the cathode and the light-emitting layer (Fig. 11 upper LiF layer).

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi et al. U.S. Patent 6,361,886 in view of Noguchi et al. U.S. Patent 6,403,237.

Regarding claim 29, Shi et al. teaches all the limitations of claim 29, but fails to teach the light-emitting layer being formed by an ink-jet method. Noguchi et al. in the analogous art teaches the light-emitting layer being formed by an ink-jet method (col. 21 lines 59-67). Additionally, Shi et al. teaches incorporation of such a coating method to improve successfully applying a light emitting layer of an OLED (col. 21 lines 59-67;abstract).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the ink-jet method to apply a light-emitting layer in the light-emitting layer of Shi et al., since such a modification would improve successfully applying a light emitting layer of an OLED as taught by Noguchi et al.



### ***Response to Arguments***

Applicant's arguments with respect to claims 17-27 have been considered but are moot in view of the new ground(s) of rejection.

The examiner wants to point out that in the specification the applicant writes that a hole injection/transport layer is a hole injection and/or transport layer. A hole injection layer was chosen here.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tang U.S. Patent 4,356,429 disclose an organic electroluminescent cell.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Zimmerman whose telephone number is (571) 272-2466. The examiner can normally be reached on M-W 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Glenn Zimmerman

  
Vip Patel  
Primary Examiner  
AU 2879